STRAWBERRY FERTILIZER RECOMMENDATIONS FOR THE ATLANTIC PROVINCES

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It is recommended that growers use the laboratory's interpretation of the levels of nutrients in their soil as the basis for fertilizer applications as the recommendations in this guide are given for general information only. The Departments of Agriculture for the Atlantic Provinces and the Atlantic Provinces Agricultural Services Coordinating Committee by printing this publication do not offer any warranty or guarantee and do not assume any liability for crop loss, animal loss, health, safety or environmental hazard caused by following these recommendations. Trade names used in this guide are given as a convenience to producers and are neither an endorsement of the product nor a suggestion that similar products are not effective.

GENERAL INFORMATION

Strawberries can make excellent growth in a well-drained, good structured soil with pH in the range of 5.0 to 7.0. An adequate supply of available nitrogen (N), phosphorus (P), potassium (K), calcium (Ca), magnesium (Mg) and trace elements, particularly boron (B), is essential for vigorous growth and high yields. Another important factor to be considered is the physical analysis of a soil or the percentage of sand, silt and clay that it contains. Both silt and clay will aid organic matter in improving the moisture and nutrient holding capacities of a soil. Excessive soil moisture is not optimum for strawberries, however, so poorly drained soils should be avoided. In general, for the Atlantic region, optimum soil test levels for the principle nutrients are given below.

Potassium (K)
Strawberry plants have a high demand for K primarily because it is a major component of the berries. Potassium is similar to P in that little is dissolved in solution. Good root development is necessary for the plant to come in contact with and acquire sufficient K. Preplant incorporation of K is the most effective application method. Excessive K can induce a Mg deficiency. If the K/Mg ratio is greater than 4, and K is being applied, additional Mg should also be applied.

Calcium (Ca) and Magnesium (Mg)
Strawberries have been found to produce good yields over a wide range of soil calcium and magnesium levels. Ratios of soil calcium to magnesium (Ca/Mg) may range from 4:1 to 10:1 with no detrimental effect on yield. Organic matter aids in holding moisture and will also supply a means for holding plant nutrients. Generally, a heavy soil (high in silt and clay) with high organic matter (8-10%) will require more lime to raise the pH a given amount and may have 2 to 5 times as much calcium and magnesium as a sandy soil with low organic matter (2-4%); however, both soils may have the same pH and the Ca/Mg ratios will very likely be similar. Calcium and Mg are subject to leaching and deficiencies are most likely to occur on coarse soils that are low in pH.

Boron (B)
Strawberry fields with poor plant growth and general lack of vigor may be deficient in boron. Soil tests have shown that B levels in many of these fields were 0.2-0.3 ppm or less. Foliar application of Solubor (0.5-1.0 kgB/ha) will help to correct this problem temporarily. It is suggested that if a preplant soil B level is 0.2-0.3 ppm or lower, that B be added with the preplant fertilizer to give ONE kg actual B/ha (example: 500kg/ha of 10-20-10-.2B). If soil test levels for N, P_2O_5 and K_2O are reported in the optimum range, then Solubor (20%B) can be sprayed on at a rate of 5 kg/ha and incorporated into the soil.

Nitrogen (N)
Depending on previous cropping and manuring practices, a soil may have sufficient N supplying power to enable a grower to reduce the total amount of N applied during each season. Most soil nitrogen is present in the organic matter. A four year nitrogen experiment with 'Micmac' and 'Bounty' indicated that 'Bounty' was more responsive to N than 'Micmac'. In the first crop year, yield of both cultivars was increased by the N treatments. In the second and third crop years, 'Micmac' yields from plots without added N were comparable to those from plots that had received the recommended N applications. Apparently this cultivar, growing on a sandy loam soil at a pH of 5.5-5.7 with an adequate preplant supply of phosphorus, potassium, calcium and magnesium, was capable of producing acceptable yields without added nitrogen.

In producing fields, the most important nitrogen application occurs soon after harvest at the time of renovation. Fruit number is determined from mid-August into the fall months and is regulated by the length of day, but can be improved by timely nitrogen and irrigation applications during renovation. Irrigation will mobilize the nitrogen and encourage the plants to resume growth.

Early spring nitrogen applications, in a cropping year, can be beneficial to plant growth and crop yield when coupled with adequate moisture and good weed control. This has been particularly

GENERAL RECOMMENDATIONS FOR THE ATLANTIC PROVINCES

TIME OF APPLICATION	RATIO OF NPK	NUTRIENTS-kg/ha N	P_2O_5	K_2O	SUGGESTED ANALYSIS	PRODUCT kg/ha
Preplant Year[1]	0-2-1	0	300	150	0-20-10	1500
(fall)	or 0-1-0	0	300	0	0-46-0	650
Planting Year	1-1-1	50	50	50	19-19-19	270
Preplant[2]	or 1-2.5-0	60	150	0	18-46-0	330
AND						
4-6 Weeks after	1-1-1	50	50	50	17-17-17	295
planting	or 1-0-0	50	0	0	34-0-0	150
AND						
In mid-August	1-0-0	50	0	0	34-0-0	150
Harvest year[3]						
7-10 days after	1-0-0	30	0	0	46-0-0	65
mulch removal	or 1-2.5-0	30	75	0	18-46-0	165
AND						
Renovation[4]						
Immediately	1-1-1	50-100	50-100	50-100	17-17-17	295-590
after harvest	or 1-0-0	50-100	0	0	34-0-0	150-300

1. Pre-plant applications should be done if soil test identifies low P or K, or past cropping experience indicates a low fertility condition. Fall preplant applications are preferable to spring applications for lime and the relatively immobile nutrients P and K.

2. Spring preplant applications can be applied within one week of planting. If the fall pre-plant application was done, this spring preplant fertilizer should not be necessary.

3. This harvest year spring application is primarily recommended to help injured plants recover from winter damage. The suggested range of diammonium phosphate, DAP (18-46-0), is 55-165 kg/ha depending on winter injury. For this application, urea (46-0-0) should be used as the nitrogen source in place of DAP if the soil phosphorus (P) level is medium to high.

4. Fertilizer application during renovation should be followed by irrigation, if moisture is limiting.